

CLAIMS

Claims 1-9 (canceled)

Claim 10 (currently amended): An epoxy/elastomer adduct comprising:
an epoxy component;
an elastomer, the elastomer including a butadiene ~~butyl~~ nitrile rubber;
wherein:
i. the epoxy component is ~~at least slightly~~ reacted with the elastomer;
and
ii. the adduct is solidified and without any substantial solvent; and
iii. the epoxy component is between about 70% and about 85% by weight
of the adduct and the elastomer is at least about 15% by weight of the
adduct.

Claim 11 (original): An epoxy/elastomer adduct as in claim 10 further comprising a catalyst, the catalyst being selected from a phosphine and an iodide.

Claim 12 (original): An epoxy/elastomer adduct as in claim 10 further comprising a catalyst, the catalyst being a triphenyl phosphine.

Claim 13 (original): An epoxy/elastomer adduct as in claim 10 further comprising a catalyst, the catalyst being an ethyl triphenyl phosphonium iodide.

Claim 14 (original): An epoxy/elastomer adduct as in claim 10 wherein the epoxy component is provided as a phenolic resin and wherein the adduct exhibits a viscosity of at least about 500 Pa-s at a temperature of about 100 °C and a shear rate of 400 s⁻¹.

Claim 15 (canceled)

Claim 16 (original): An epoxy/elastomer adduct as in claim 10 wherein the epoxy component is provided as a phenolic resin including at least one of a bisphenol-A epichlorohydrin ether polymer or a solid bisphenol-A epoxy resin.

Claim 17 (original): An epoxy/elastomer adduct as in claim 10 wherein the epoxy component has a molecular weight between about 900 amu and about 1300 amu, an epoxy equivalent weight between about 100 EEW g/mol and about 1000 EEW and a softening point between about 65 °C and about 75 °C.

Claim 18 (original): An epoxy/elastomer adduct as in claim 10 wherein the elastomer is between about 15% and about 35% by weight of the adduct and the elastomer has a carboxyl content of between about 0.05 and about 0.1 equivalents per hundred rubber.

Claim 19 (original): An epoxy/elastomer adduct as in claim 10 further comprising a reactive diluent wherein the adduct exhibits a viscosity of at least about 600 Pa-s at a temperature of about 100 °C and a shear rate of 400 s⁻¹.

Claims 20-23 (canceled)

Claim 24 (currently amended): An epoxy/elastomer adduct comprising:
an epoxy component provided as a phenolic resin including at least one of a solid bisphenol-A epichlorohydrin ether polymer or a solid bisphenol-A bisphenol-A epoxy resin ~~wherein~~; and
an elastomer, the elastomer including a butadiene ~~butyl~~ nitrile rubber;
wherein:
i. the epoxy component is at least slightly reacted with the elastomer;
ii. the adduct exhibits a viscosity of at least about 500 Pa-s at a temperature of about 100 °C and a shear rate of 400 s⁻¹; and

- iii. the epoxy component is between about 70% and about 85% by weight of the adduct and the elastomer is at least about 15% by weight of the adduct; and
- iv. the adduct is solidified and without any substantial solvent.

Claim 25 (previously presented): An epoxy/elastomer adduct as in claim 24 wherein the epoxy component has a molecular weight between about 900 amu and about 1300 amu, an epoxy equivalent weight between about 100 EEW g/mol and about 1000 EEW and a softening point between about 65 °C and about 75 °C.

Claim 26 (previously presented): An epoxy/elastomer adduct as in claim 25 wherein the elastomer is between about 15% and about 35% by weight of the adduct and the elastomer has a carboxyl content of between about 0.05 and about 0.1 equivalents per hundred rubber.

Claim 27 (previously presented): An epoxy/elastomer adduct as in claim 26 further comprising a reactive diluent wherein the adduct exhibits a viscosity of at least about 600 Pa-s at a temperature of about 100 °C and a shear rate of 400 s⁻¹.

Claim 28 (previously presented): An epoxy/elastomer adduct as in claim 27 further comprising a catalyst, the catalyst being selected from a phosphine and an iodide.

Claim 29 (previously presented): An epoxy/elastomer adduct as in claim 28 wherein the catalyst is a triphenyl phosphine.

Claim 30 (previously presented): An epoxy/elastomer adduct as in claim 28 wherein the catalyst is an ethyl triphenyl phosphonium iodide.

Claim 31 (new): An epoxy/elastomer adduct as in claim 10 wherein the adduct is formed by melt mixing the epoxy component with the elastomer without any substantial solvent used in the mixing.

Claim 32 (new): An epoxy/elastomer adduct as in claim 24 wherein the adduct is formed by melt mixing the epoxy component with the elastomer without any substantial solvent used in the mixing.

Claim 33 (new): An epoxy/elastomer adduct comprising:

a solid epoxy component composed substantially entirely of a solid bisphenol-A epoxy resin, the epoxy resin having a molecular weight of between about 400 amu and about 1500 amu, the epoxy resin having between about 200 EEW and about 750 EEW, the epoxy resin having a softening point between about 45 °C and about 85 °C; and

an elastomeric component composed substantially entirely of a butadiene nitrile rubber, the elastomeric component having a mooney viscosity of between about 15 and about 40 at a temperature of 100 °C and having a carboxyl content of between about 0.01 EPHR and about 0.1 EPHR and being between about 20% and about 40% by weight nitrile, wherein:

- i. the epoxy component is reacted with the elastomer;
- ii. the adduct exhibits a viscosity of at least about 500 Pa-s at a temperature of about 100 °C and a shear rate of 400 s⁻¹;
- iii. the epoxy component is between about 70% and about 85% by weight of the adduct and the elastomer is greater than about 20% by weight of the adduct; and
- iv. the adduct is solidified and without any substantial solvent.

Claim 34 (new): An epoxy/elastomer adduct as in claim 33 wherein the adduct is formed by melt mixing the epoxy component with the elastomer without any substantial solvent used in the mixing.